

AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A retinal imaging system comprising:

a light source;

optics which receive light from the light source and which transmit the light to produce a beam that is substantially convergent, the beam entering an eye along a first axis, penetrating a lens of the eye, and diverging following penetration of the lens to illuminate an area of a retina of the eye, the beam converging until reaching the lens; and

an imaging device that receives imaging rays produced by a reflection of the beam from the retina, wherein the imaging rays exit the eye along a second axis that is separate and different from the first axis.

2. (Original) The retinal imaging system of claim 1, wherein the optics comprise a beam splitting device that allows transmission of at least part of the light away from the eye.

3. (Original) The retinal imaging system of claim 2, further comprising:

a darkened region for absorbing the part of the light transmitted away from the eye.

4. (Original) The retinal imaging system of claim 1, further comprising:

a surface containing an aperture that is positioned in front of the eye for blocking at least some Purkinje reflections and corneal reflections from the eye.
5. (Original) The retinal imaging system of claim 4, wherein the surface is covered, at least in part, with a non-reflective material.
6. (Original) The retinal imaging system of claim 1, further comprising:

surfaces that form an aperture located between the light source and the optics, the aperture limiting an angle of the light to reach the optics.
7. (Original) The retinal imaging system of claim 1, further comprising a series of surfaces that form a series of apertures located between the light source and the optics, the series of apertures limiting an angle of the light to reach the optics.
8. (Original) The retinal imaging system of claim 1, further comprising rilling located along a path the light takes between the light source and the optics.
9. (Previously Presented) The retinal imaging system of claim 1, further comprising a stereo filter located on an optical path between the eye and the imaging device, the stereo filter

comprising an area for transmitting a first portion of the imaging rays from the eye and an area for blocking a second portion of the imaging rays.

10. (Previously Presented) The retinal imaging system of claim 9, wherein the first portion of the imaging rays comprise rays obtained at a first angle from a point on the retina, and the second portion of the imaging rays comprise rays obtained at a second angle from the point on the retina.

11. (Original) The retinal imaging system of claim 1, further comprising:
at least one housing that holds the light source, the optics, and the imaging device; and
a mechanism for positioning the at least one housing relative to the eye.

12. (Original) The retinal imaging system of claim 1, further comprising:
a housing that holds at least part of the optics, the housing being movable to change the area of the retina that is illuminated.

13. (Original) The retinal imaging system of claim 1, wherein the light source comprises:
light emitting diodes having different colors; and optical fiber arranged to receive light from at least one of the light emitting diodes.

14. (Currently Amended) An ophthalmoscope comprising:

optics which direct light into a predetermined portion of an eye that is not used for imaging, the light entering the eye along a first axis, the optics shaping the light so that the light is substantially convergent as the light goes through a lens of the eye and so that the light diverges following penetration of the lens to illuminate an area of a retina of the eye, the light converging until reaching the lens; and an imaging device that captures images of the retina from imaging rays produced by a reflection of the light from the retina, wherein the imaging rays exit the eye along a second axis that is separate and different from the first axis.

15. (Original) The ophthalmoscope of claim 14, wherein the optics comprise a beam splitting device that transmits at least part of the light away from the eye.

16. (Original) The ophthalmoscope of claim 15, further comprising:
a darkened region for absorbing the part of the light transmitted away from the eye.

17. (Previously Presented) The ophthalmoscope of claim 14, further comprising:
a surface containing an aperture that is positioned in front of the eye for blocking at least some Purkinje reflections from the eye.

18. (Original) The ophthalmoscope of claim 17, wherein the surface is covered, at least in part, with a non-reflective material.

19. (Original) The ophthalmoscope of claim 14, further comprising:

a light source that provides the light to the optics; and
surfaces that form an aperture located between the light source and the optics, the
aperture limiting an angle of the light to reach the optics.

20. (Original) The ophthalmoscope of claim 14, further comprising a series of surfaces
that form a series of apertures located between the optics and a source of the light, the series of
apertures limiting an angle of the light to reach the optics.

21. (Original) The ophthalmoscope of claim 14, further comprising rilling located along
a path the light takes between a source of the light and the optics.

22. (Previously Presented) The ophthalmoscope of claim 14, further comprising a stereo
filter located on an optical path between the eye and the imaging device, the stereo filter
comprising an area for transmitting a first portion of the imaging rays from the eye and an area
for blocking a second portion of the imaging rays.

23. (Previously Presented) The ophthalmoscope of claim 22, wherein the first portion of
the imaging rays comprise rays obtained at a first angle from a point on the retina, and the
second portion of the imaging rays comprise rays obtained at a second angle from the point on
the retina.

24. (Original) The ophthalmoscope of claim 14, further comprising:

a light source that provides the light to the optics;

at least one housing that holds the light source, the optics, and the imaging device; and

a mechanism for positioning the at least one housing relative to the eye.

25. (Original) The ophthalmoscope of claim 14, further comprising:

a housing that holds at least part of the optics, the housing being movable to change the area of the retina that is illuminated.

26. (Original) The ophthalmoscope of claim 14, further comprising a light source, the light source comprising:

light emitting diodes having different colors; and

optical fiber arranged to receive light from at least one of the light emitting diodes and to deliver the light to the optics.

27. (Currently Amended) A retinal imaging apparatus, comprising:

means for producing convergent light and for directing the convergent light to a lens of an eye so that the convergent light diverges following penetration of the lens and illuminates a retina of the eye, the convergent light entering the eye along a first axis and converging until reaching the lens;

means for capturing an image of the retina from imaging rays produced by a reflection of the convergent light from the retina, wherein the imaging rays exit the eye along a second axis that is separate and different from the first axis;

means for selectively blocking light reflected from a cornea of the eye; and means for capturing light reflected from the retina.

28. (Currently Amended) A retinal imaging system comprising:

an illumination path which receives light, and causes the light to penetrate a pupil of an eye at a spot on the pupil, the light entering the eye along a first axis and exiting ~~[[the]]~~ a lens of the eye along a second axis that is separate and different from the first axis to illuminate an area of a retina of the eye, the light converging until reaching the lens and diverging following penetration of the lens; and

an imaging path which receives reflected light from the area of the retina and which transmits the reflected light to an imaging device, the imaging path containing surfaces that define apertures to reduce Purkinje reflections and to reduce reflections from an iris of the eye, the imaging path containing a stereo filter having one area for passing a first portion of the reflected light and another area for blocking a second portion of the reflected light.

29. (Original) The retinal imaging system of claim 28, further comprising:

a base on which the illumination path and the imaging path are mounted, the base providing five degrees of freedom of motion for the retinal imaging system.

30. (Original) The retinal imaging system of claim 29, wherein the base comprises a slit lamp base.

31. (Original) The retinal imaging system of claim 28, wherein the illumination path comprises a beam splitting device that transmits at least part of the light away from the eye.

32. (Original) The retinal imaging system of claim 31, further comprising:
a darkened region for absorbing the part of the light transmitted away from the eye.

33. (Original) The retinal imaging system of claim 28, wherein the illumination path comprises a series of surfaces that form a series of apertures located along the illumination path, the series of apertures limiting an angle of the light to reach the eye.

34. (Original) The retinal imaging system of claim 28, further comprising rilling located along the illumination path.

35. (Previously Presented) The retinal imaging system of claim 28, wherein the first portion of reflected light comprises light reflected at a first angle from a point on the retina, and the second portion of reflected light comprises light reflected at a second angle from the point on the retina.

36. (Original) The retinal imaging system of claim 28, further comprising:
a light source comprised of different color diodes which provide the light to the illumination path.

37. (Original) The retinal imaging system of claim 28, further comprising:

a beam splitter that transmits at least part of the light from the illumination path away

from the eye.

38. (Currently Amended) A method comprising:

generating convergent light via an illumination path of a retinal imaging system;

directing the convergent light through an illumination portion of an eye such that the light
enters the eye along a first axis, converges until reaching a lens of the eye, and diverges
following penetration of the lens, the illumination portion of the eye being segregated from an
imaging portion of the eye;

receiving reflected light via the imaging portion of the eye;

passing the reflected light through an imaging path to an image capturing device;

positioning the imaging path relative to the illumination path such that the reflected light
exits the eye along a second axis that is separate and different from the first axis; and

producing an image based on the reflected light.

39. (Original) The method of claim 38, further comprising:

selectively blocking a portion of the reflected light to produce a stereo image of the eye.

40. (Original) The method of claim 39, wherein selectively blocking comprises
transmitting a first portion of the reflected light and blocking a second portion of the reflected
light.

41. (Original) The method of claim 40, wherein the first portion comprises rays obtained at a first angle from a point on the retina, and the second portion comprises rays obtained at a second angle from the point on the retina.

42. (Original) The method of claim 38, further comprising:
blocking at least some Purkinje reflections from reaching the imaging path.

43. (Original) The method of claim 38, wherein the convergent light is generated via one or more of optics, rilling, apertures, and colored diodes.

44-59. (Cancelled)

60. (Currently Amended) A method of diagnosing a condition comprising:
directing light along an illumination path which receives light, and causes the light to enter a pupil of an eye along a first axis, the light converging until reaching a lens of the eye and diverging following penetration of the lens;

passing reflected light produced by a reflection of the light from a retina of the eye through an imaging path which transmits the reflected light to an imaging device;

positioning the imaging path relative to the illumination path such that the reflected light exits the eye along a second axis that is separate and different from the first axis;

~~rotating the illumination path relative to the eye;~~ and

generating images via the imaging device that include shadows indicative of details of the eye.

61. (Previously Presented) The method of claim 60, wherein generating images comprises generating video images.

62. (Cancelled)

63. (New) The retinal imaging system of claim 1, wherein the optics are configured to direct the light from the light source to the eye along an illumination path; the retinal imaging system further comprising:

a mechanism for rotating the illumination path relative to the eye.

64. (New) The retinal imaging system of claim 1, wherein the beam substantially collimates through the lens and diverges upon exiting the lens to illuminate the areas of the retina.